

Fig. 1a

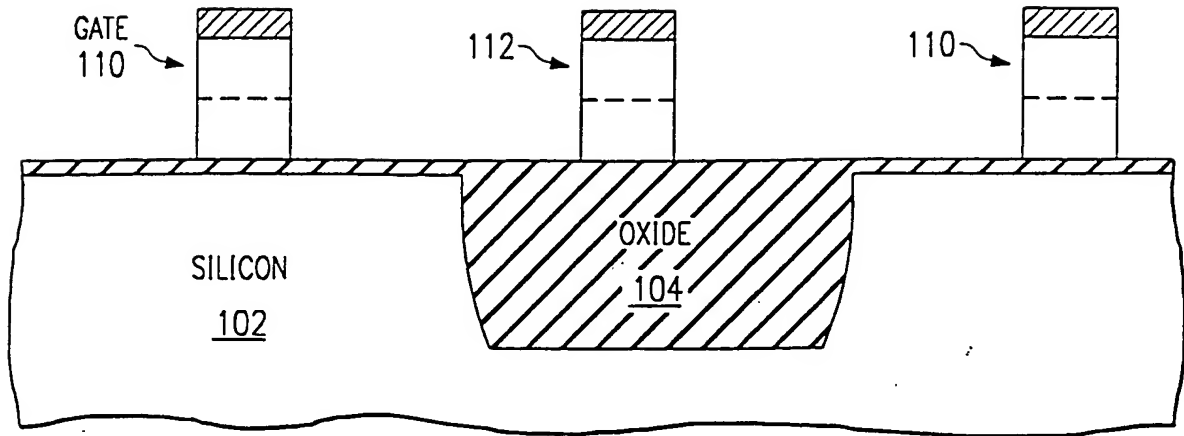


FIG. 1a

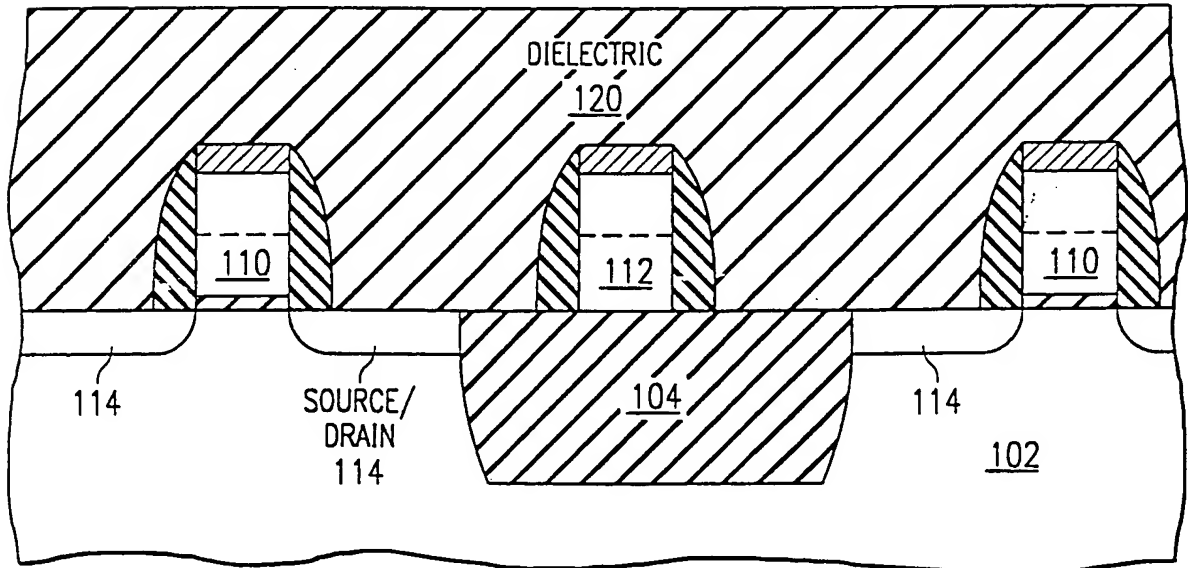


FIG. 1b

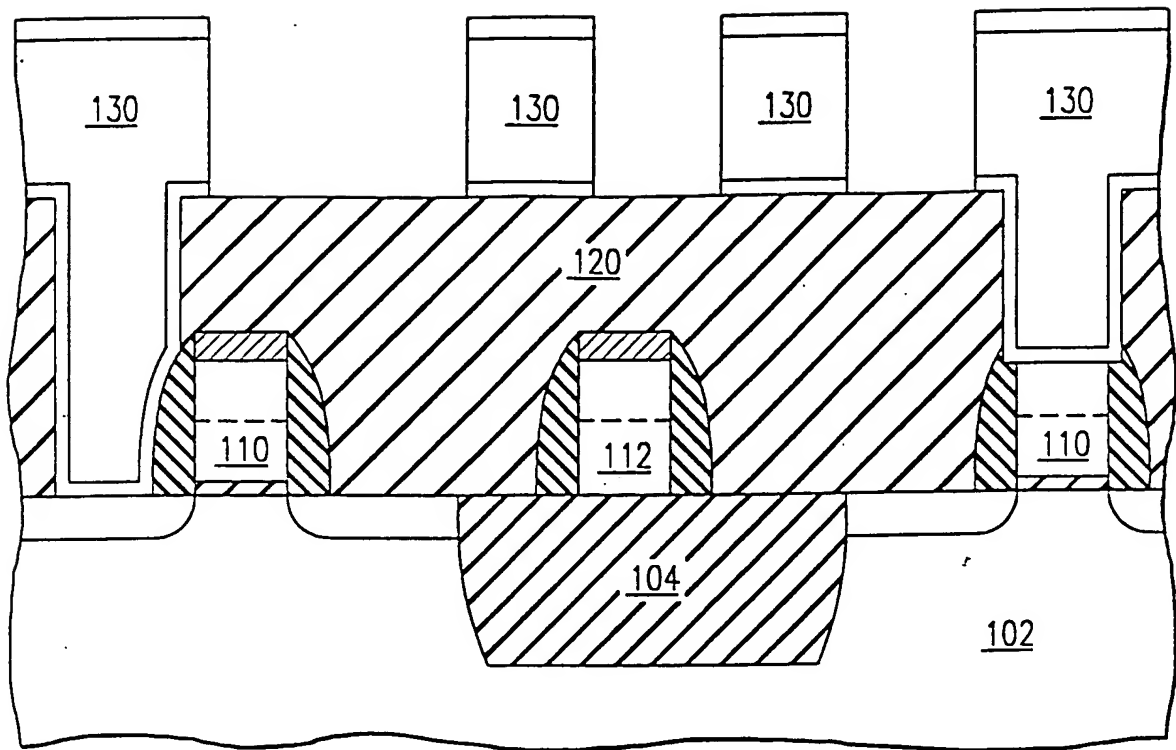


FIG. 1c

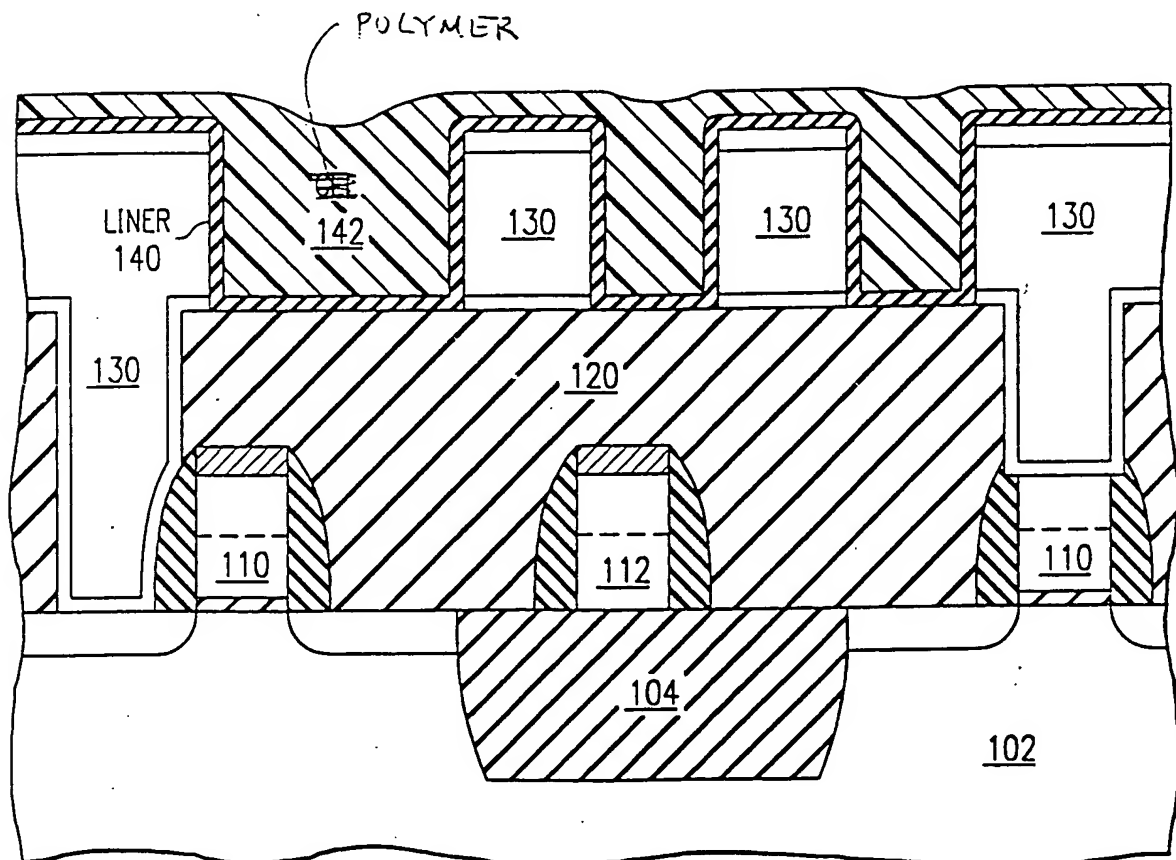


FIG. 1d

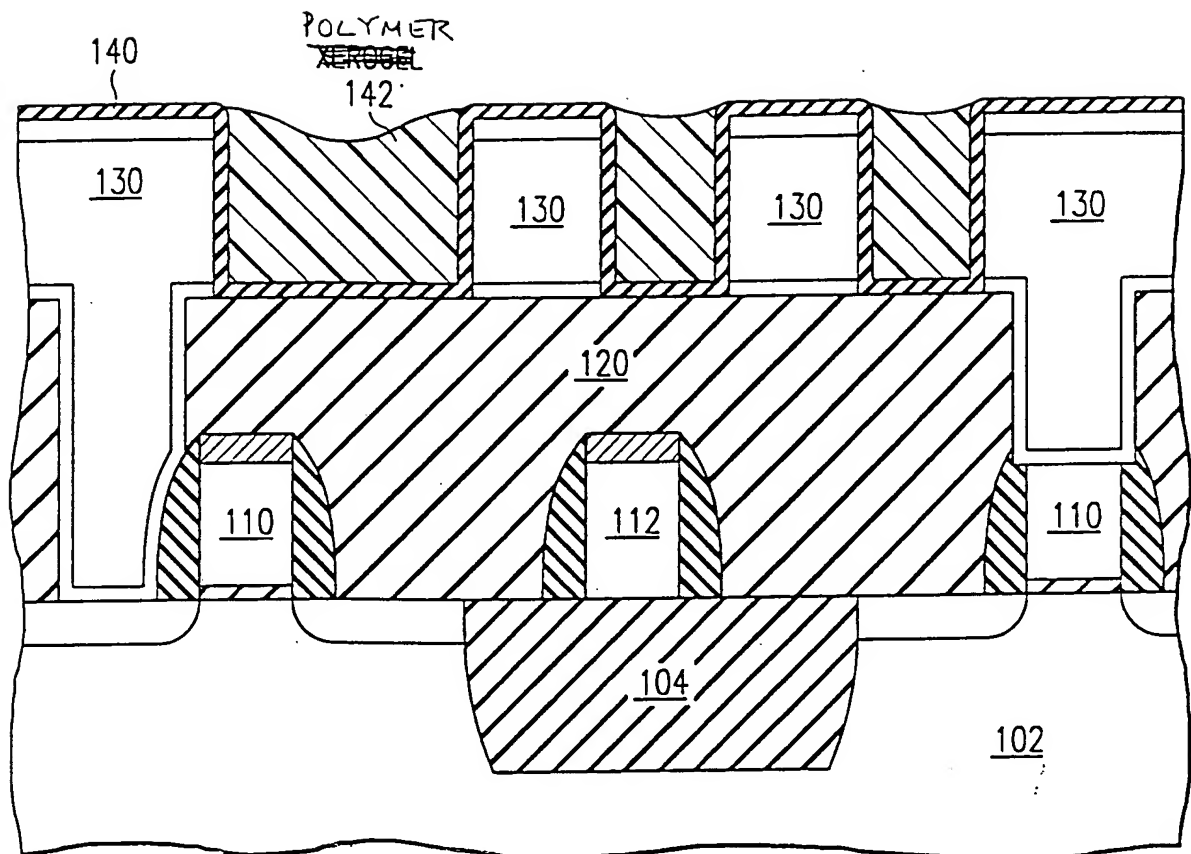


FIG. 1e

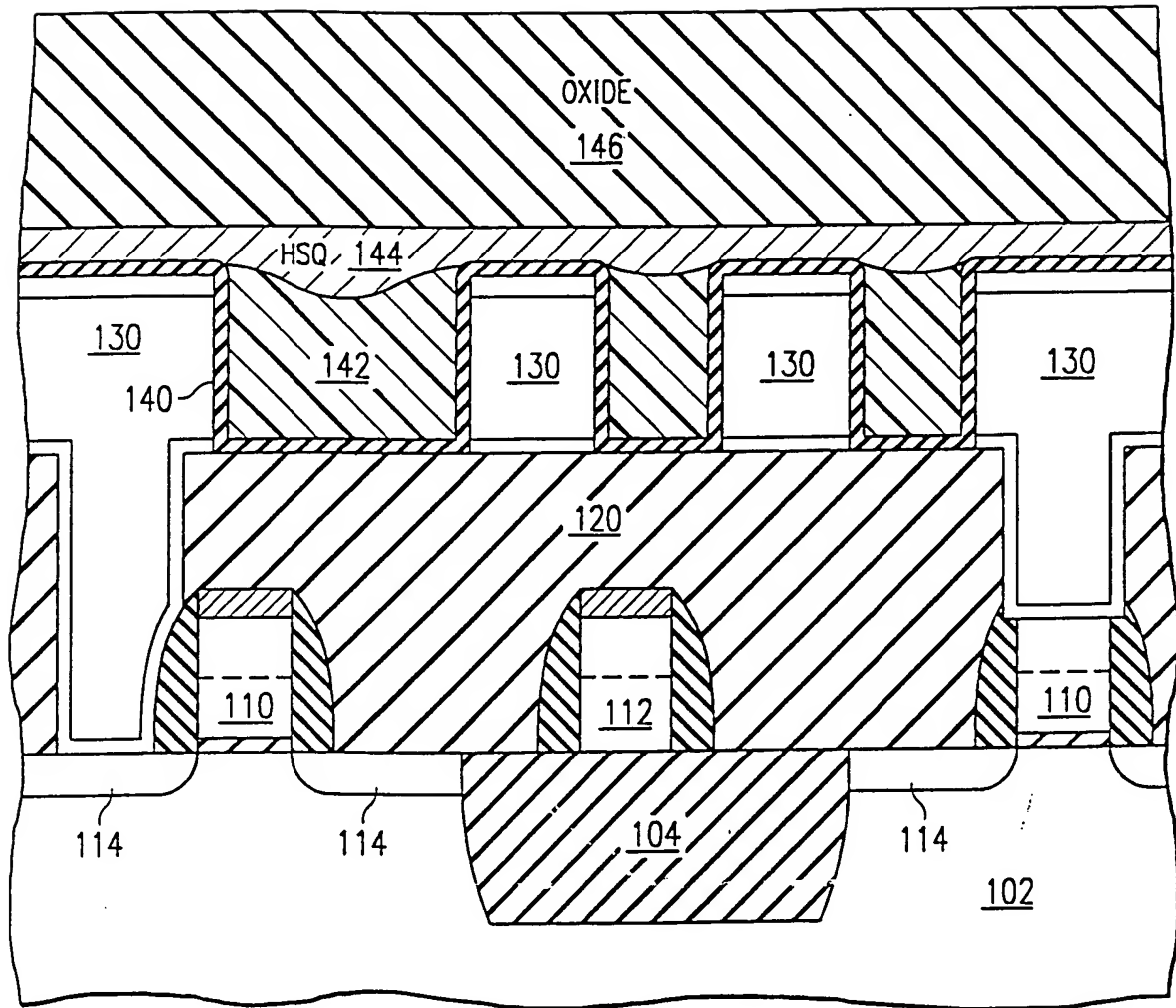


FIG. 1f

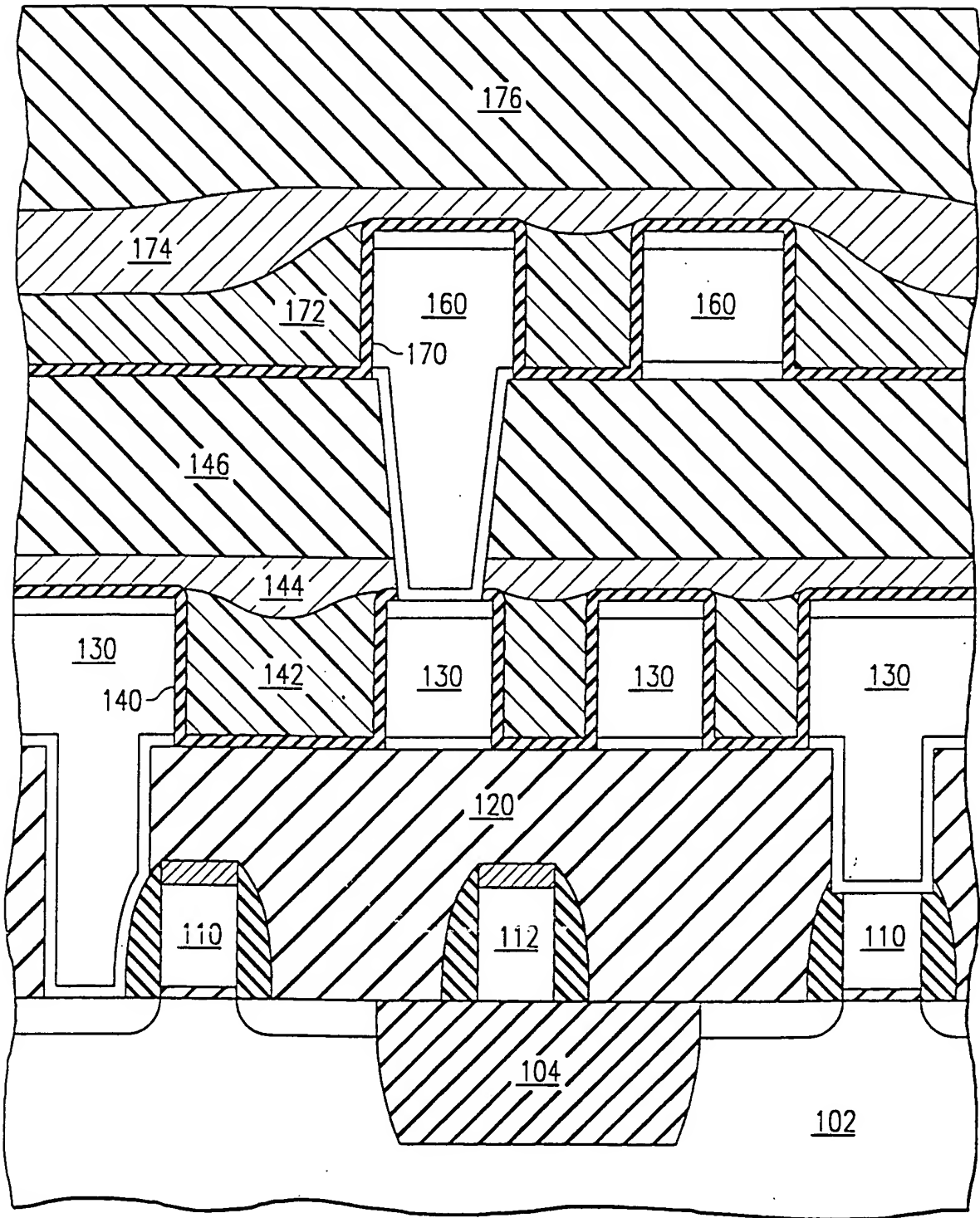


FIG. 1g

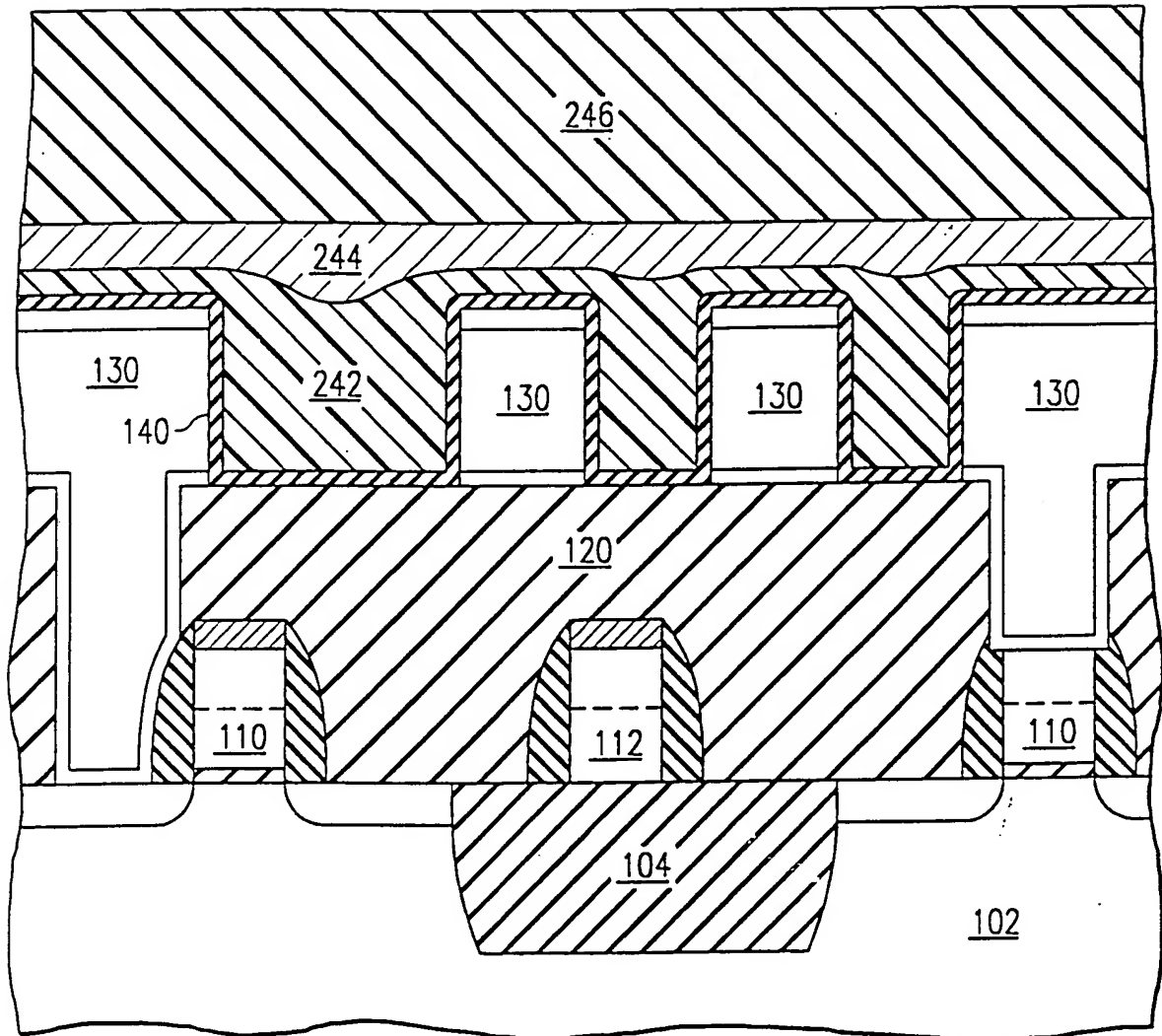


FIG. 2a

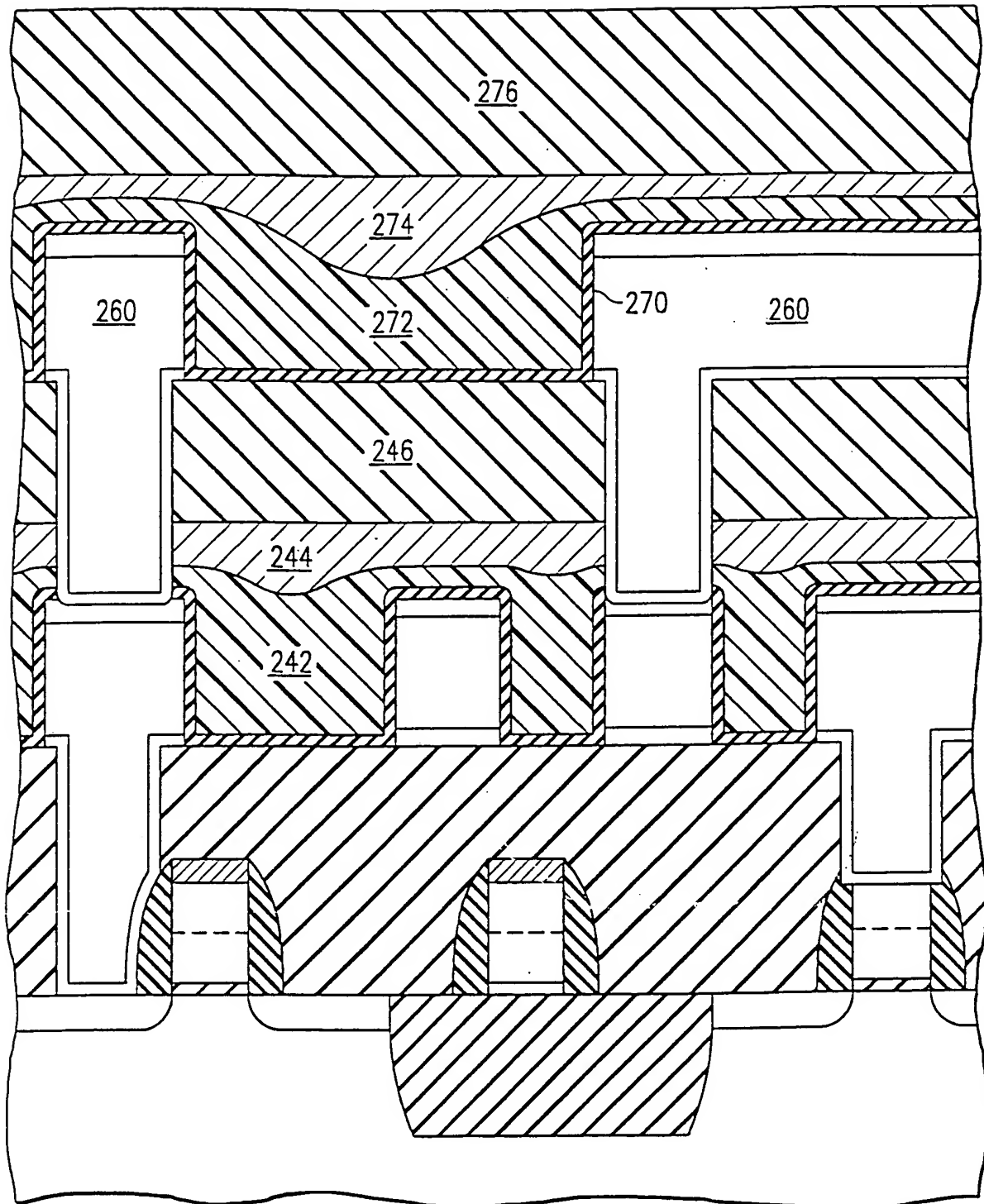


FIG. 2b

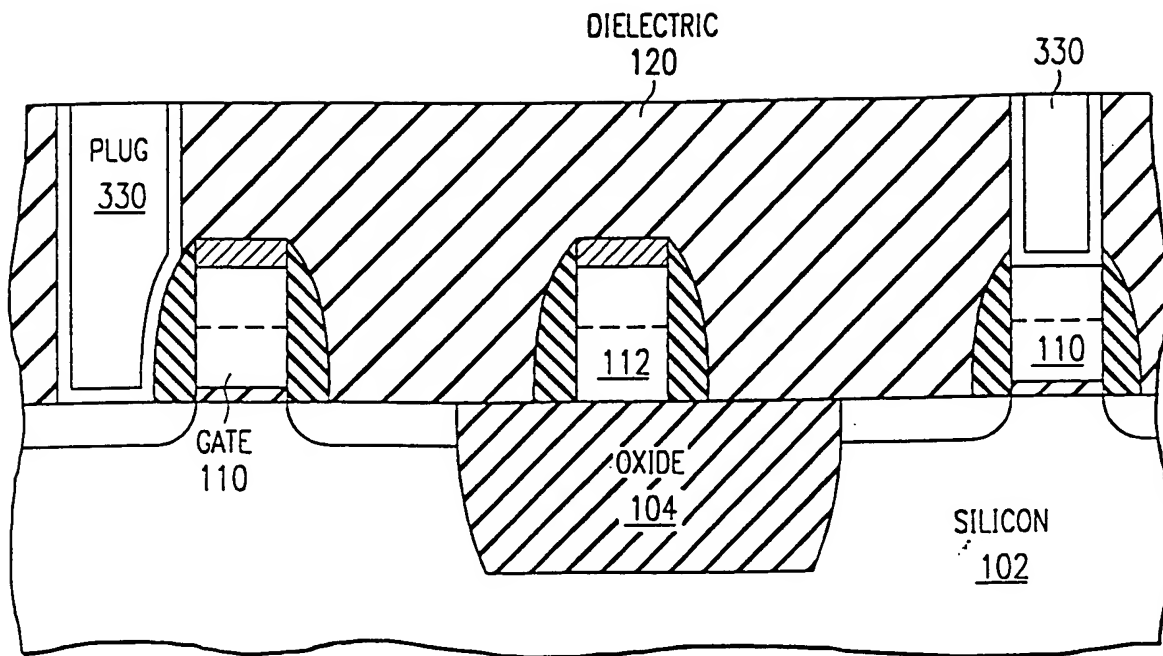


FIG. 3a

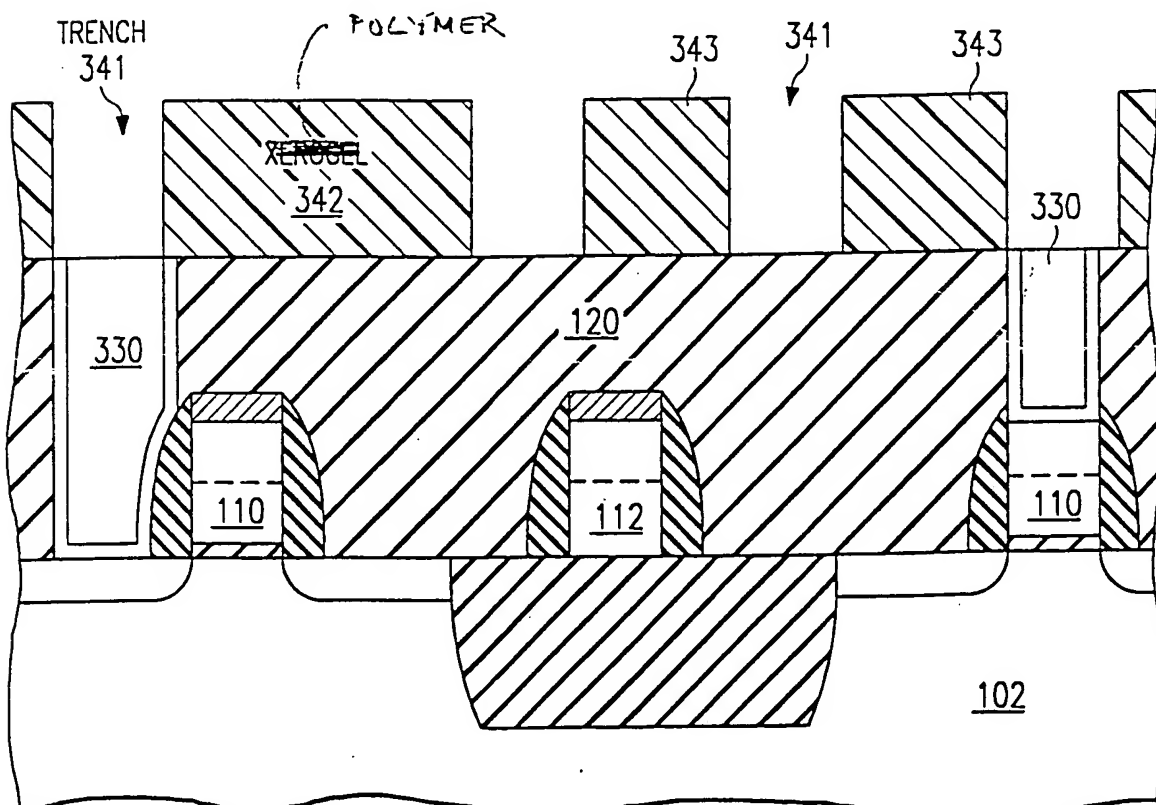


FIG. 3b

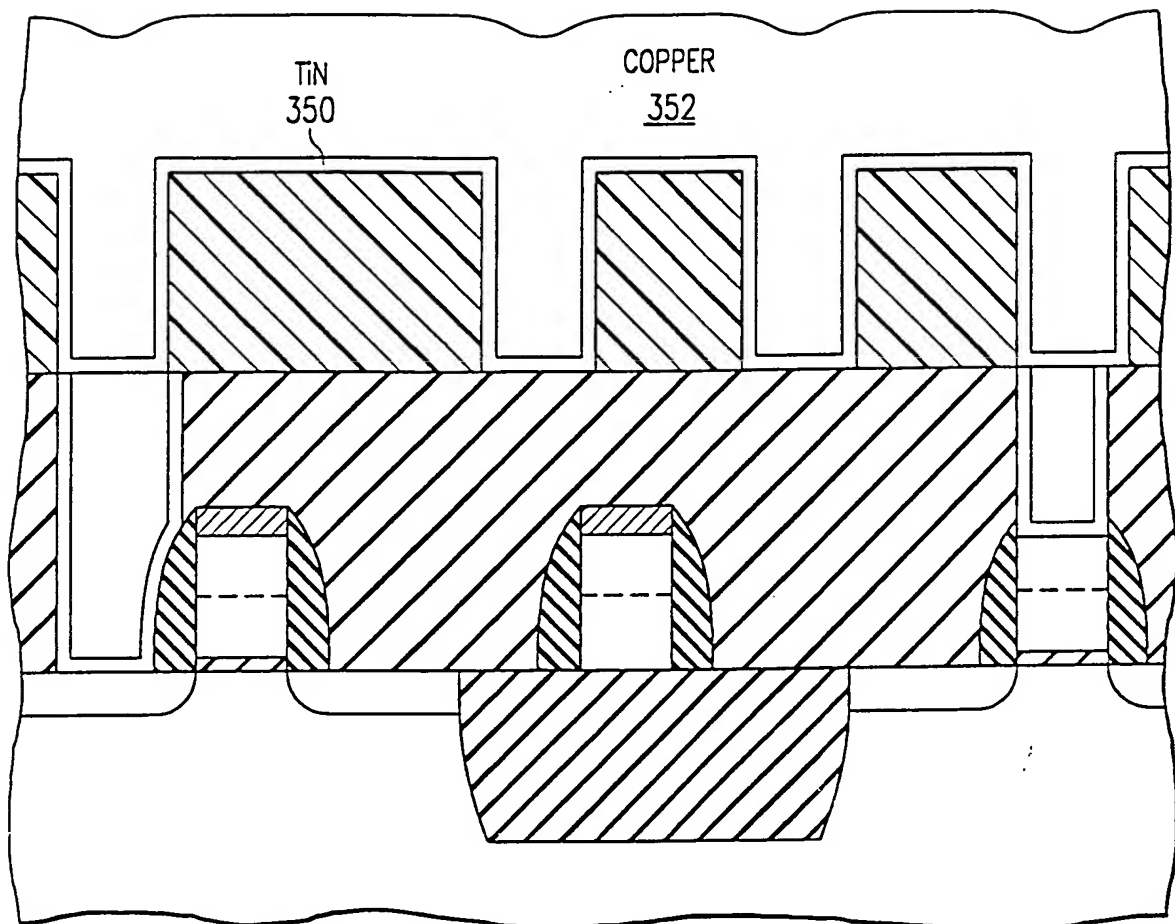


FIG. 3c

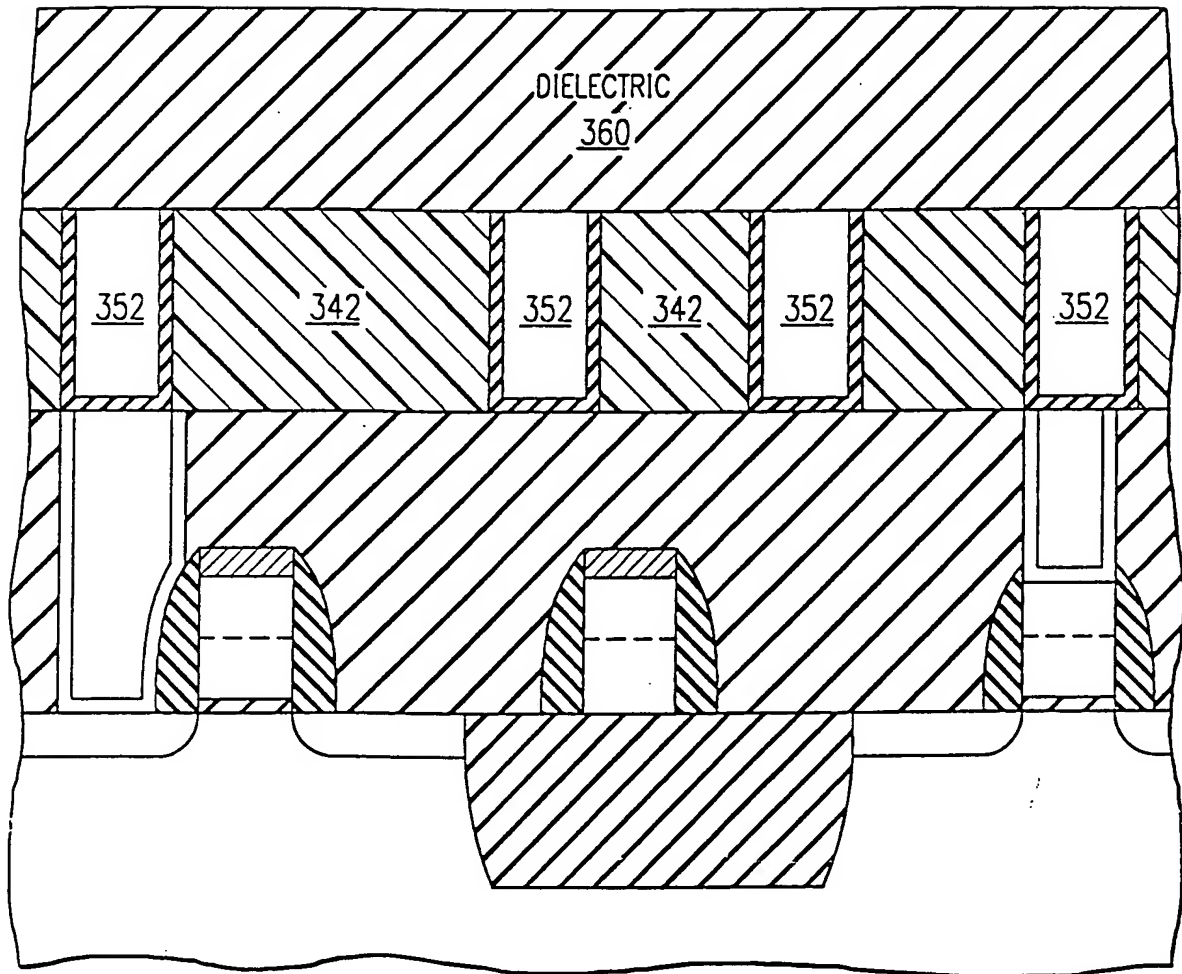


FIG. 3d

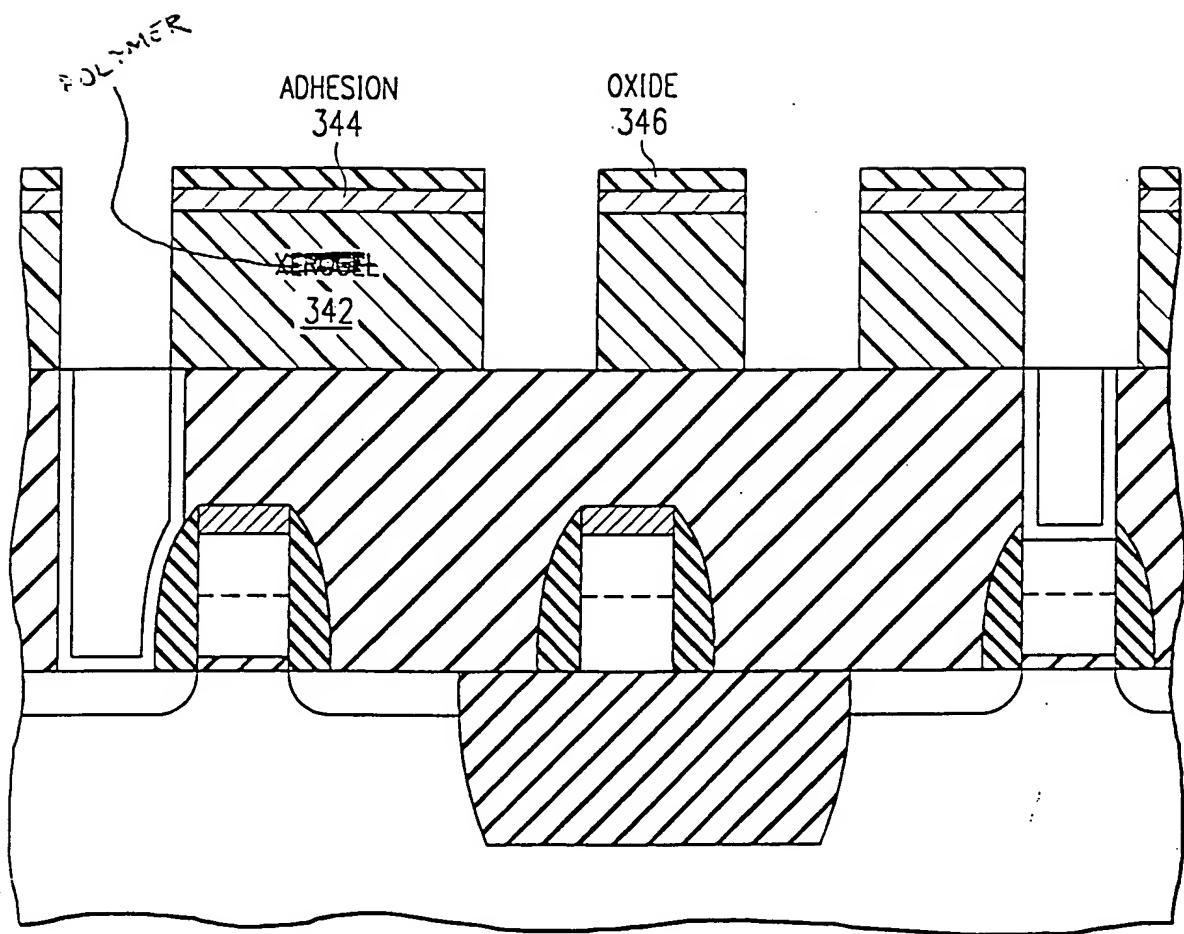


FIG. 3e

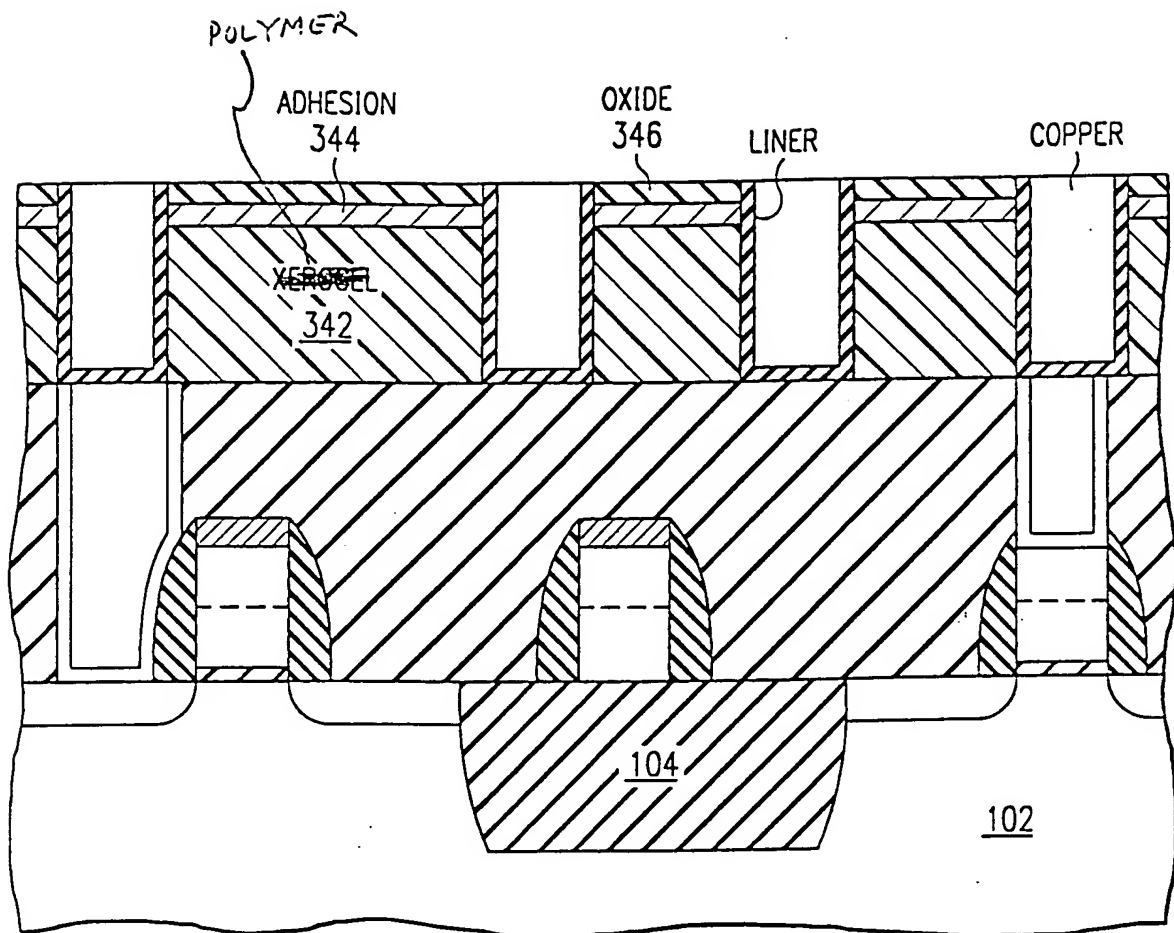


FIG. 3f

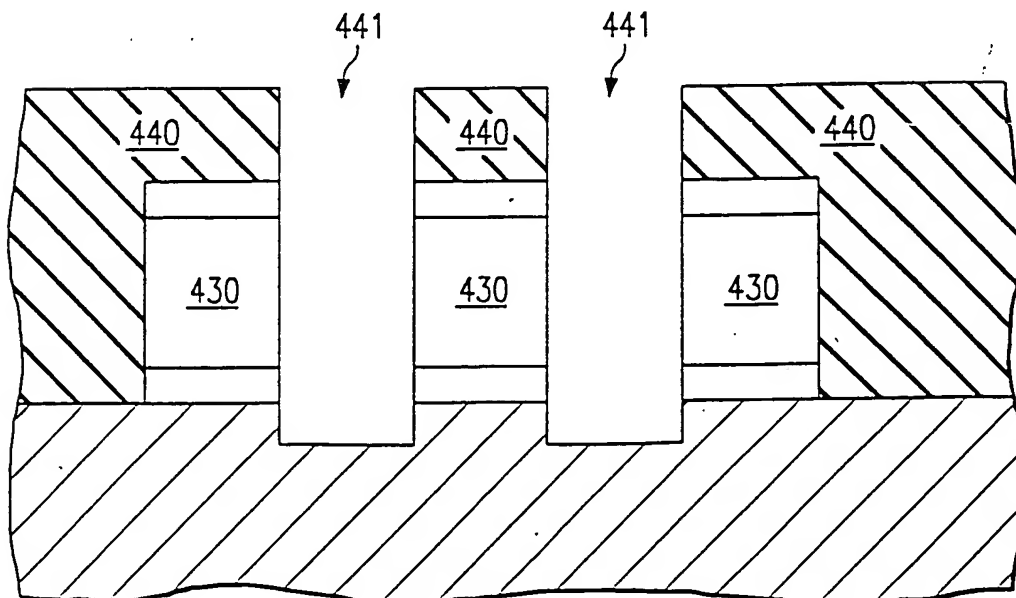


FIG. 4a

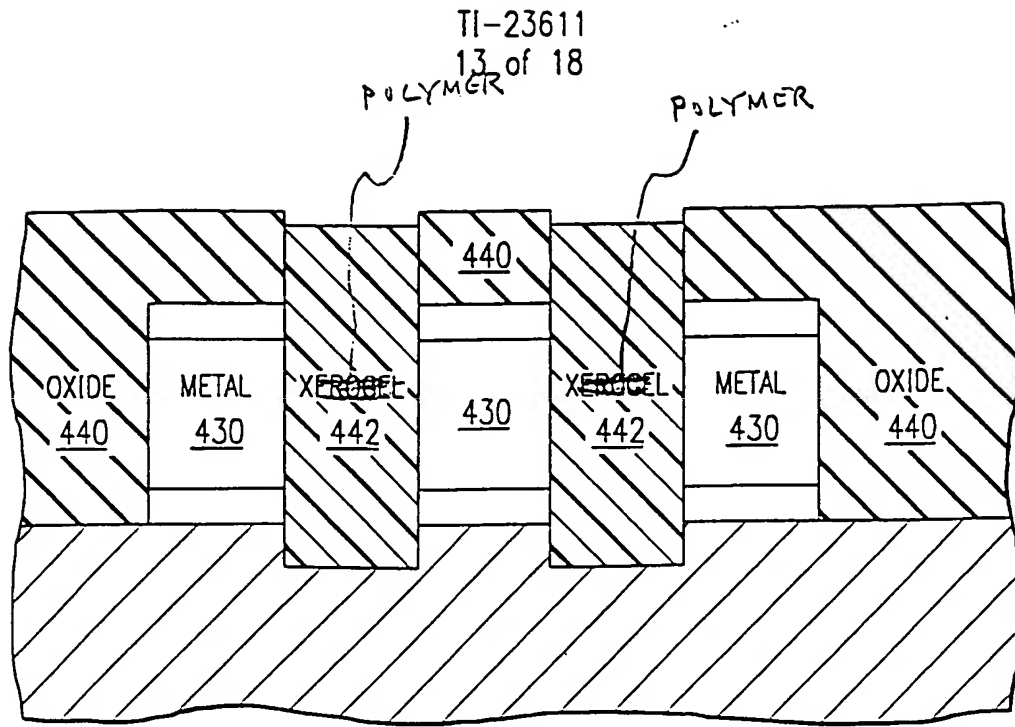


FIG. 4b

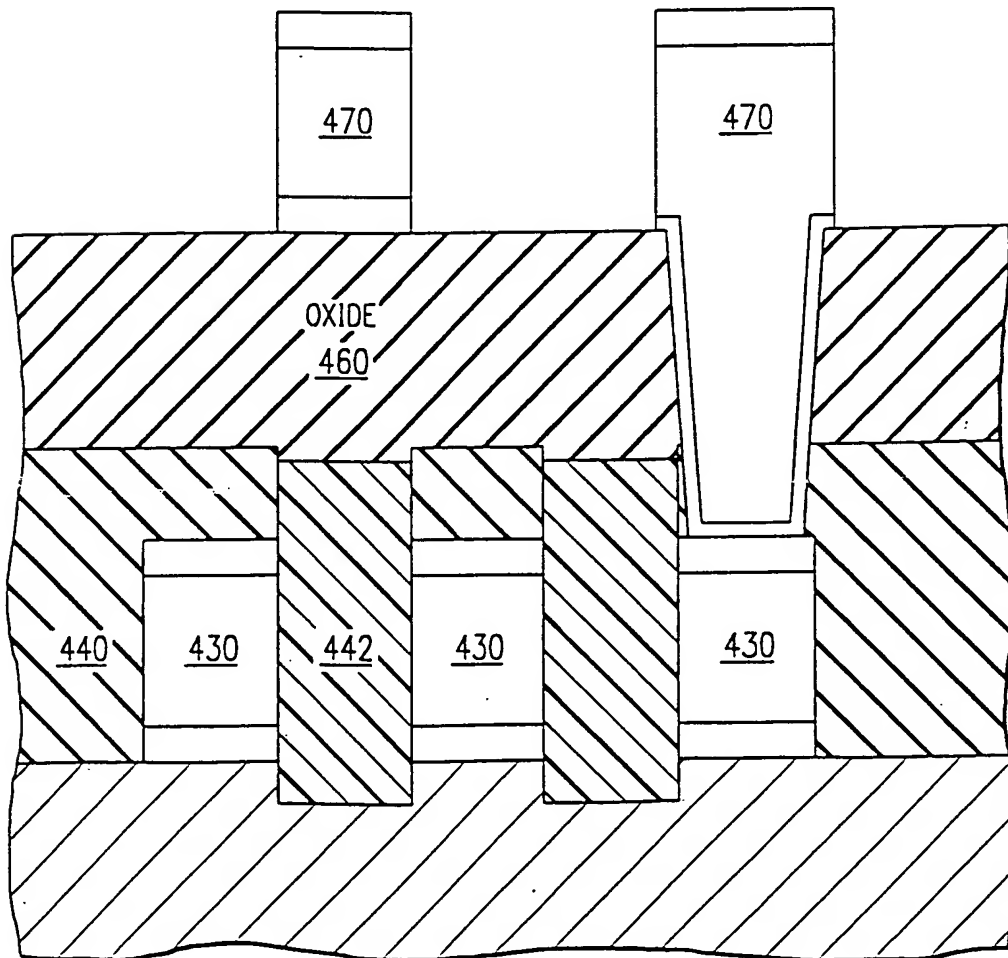


FIG. 4c

PULSED PLASMA EFFECT TO GAP-FILL

50W deposition of Pentafluorophenyl-pentafluoro-1-propene, k~1.9.

1/5 ms on/off pulse

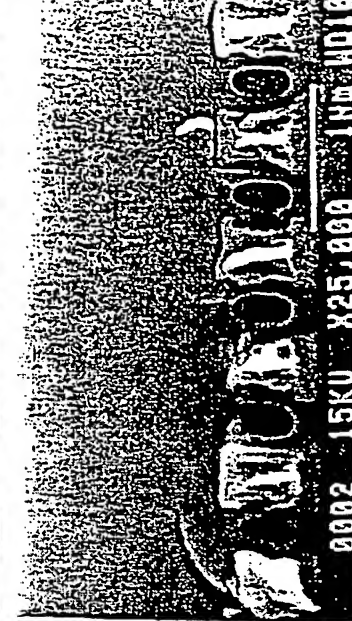
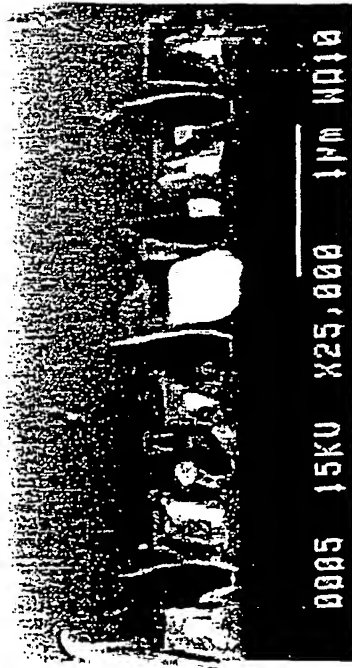
Fig 5a

Fig 5c

1/20 ms on/off pulse

Fig 5b

Fig 5d



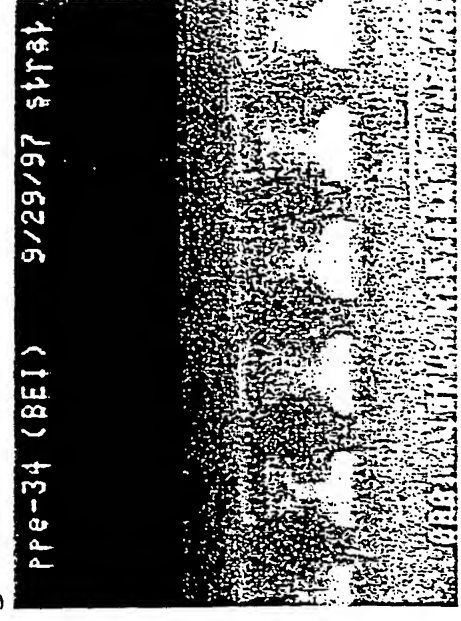
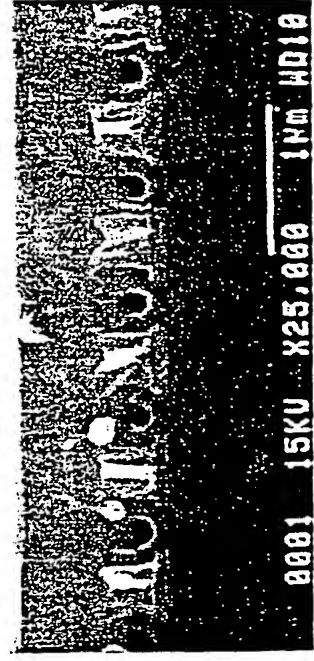
1/25 ms on/off pulse

Fig 5e

Fig 5f

1/30 ms on/off pulse

Fig 5d

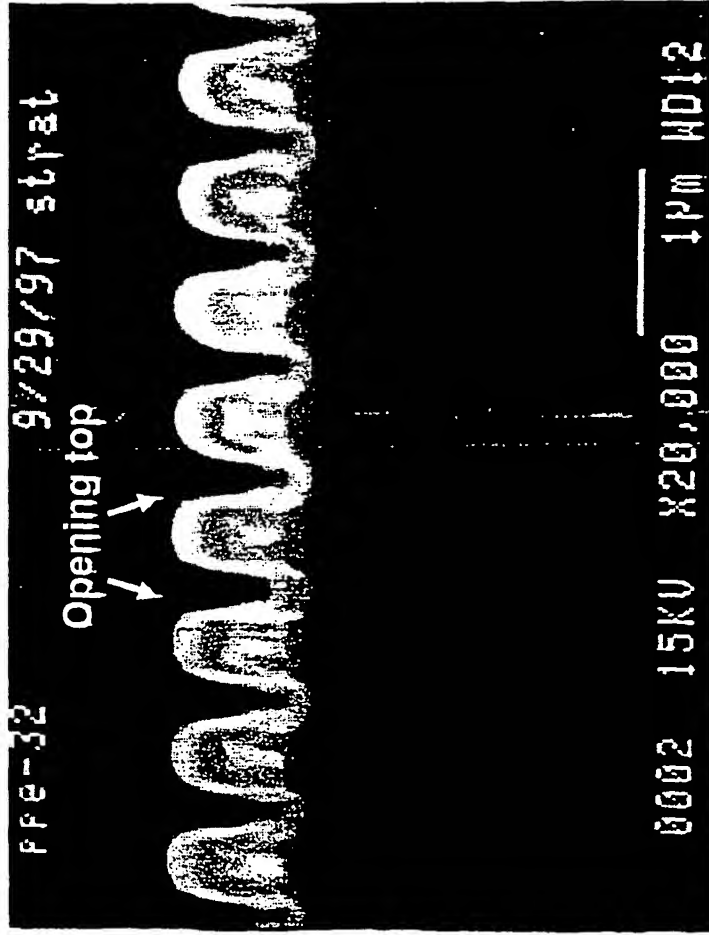


PULSED PLASMA EFFECT TO GAP-FILL

Pentafluorophenyl-pentafluoro-1-propene

50W, 1/40 ms on/off pulse

Fig. 6a



50W, 1/10 ms on/off pulse

Fig. 6b



SEM OF PULSED PLASMA DEPOSITION FOR GAP FILL

PPPE has dielectric constant value ~1.9.

Fig 7a Gap fill deposition: 50W, 1/40ms, 10min

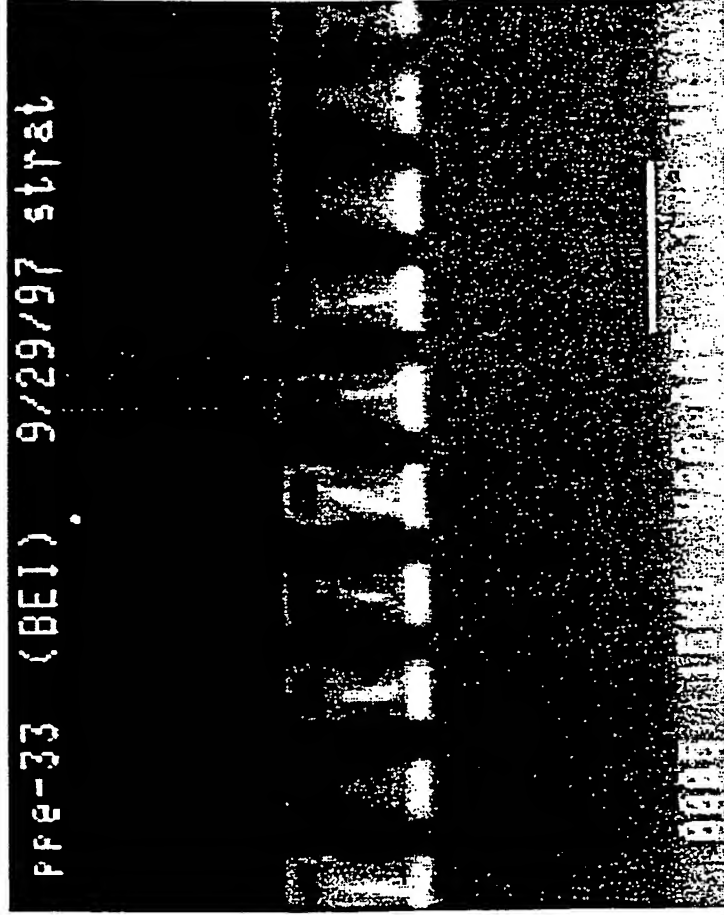
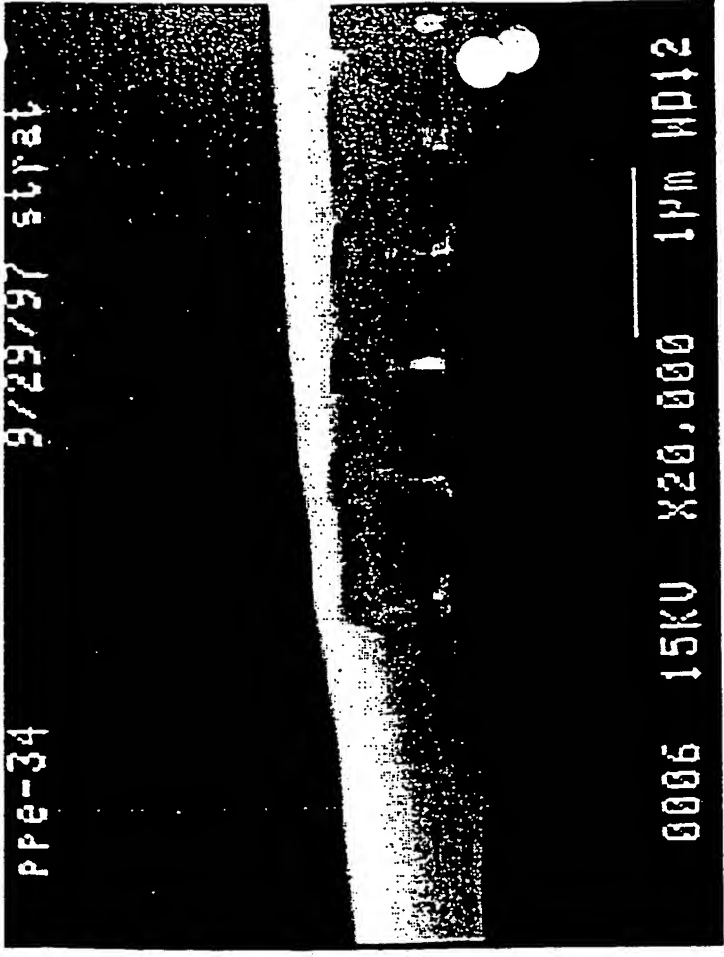


Fig 7b Planar deposition: 50W, 1/40ms, 20min



Non-etch back gap fill or planar deposition were achieved by control of deposition time.

EFFECT OF POWER TO PULSED PLASMA DEPOSITION

Fig 8a 200W, 1/40ms, 60min

Fig 8a

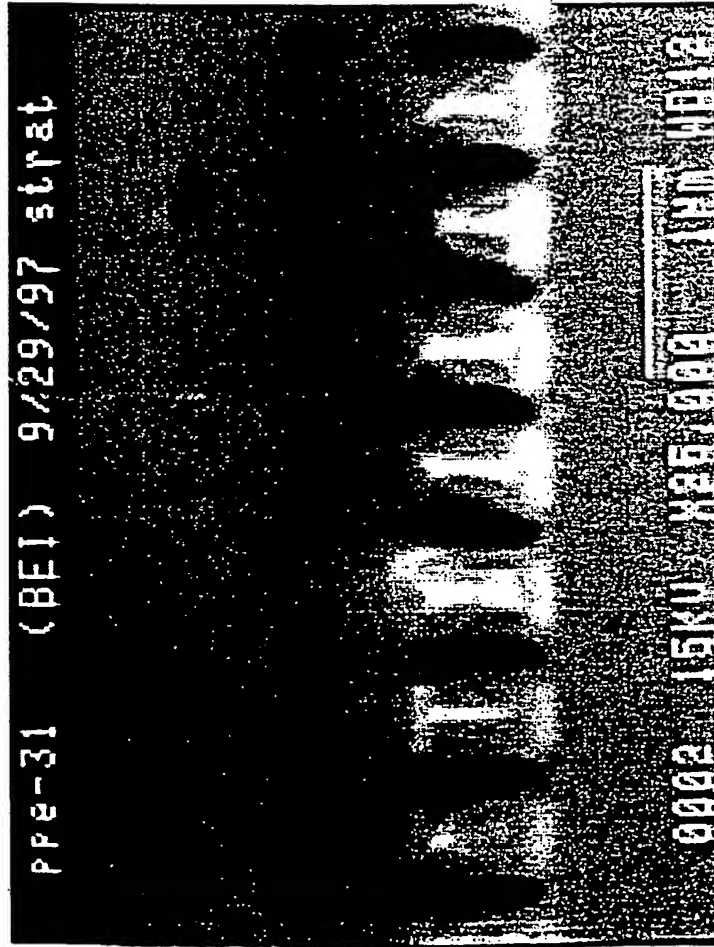
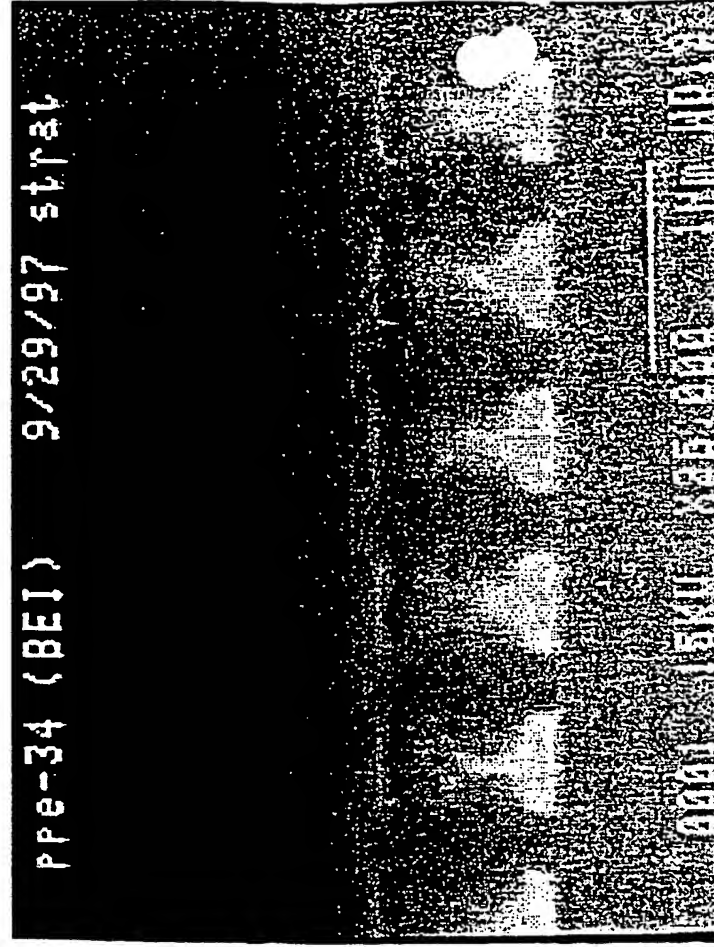


Fig 8b 50W, 1/40ms, 20min



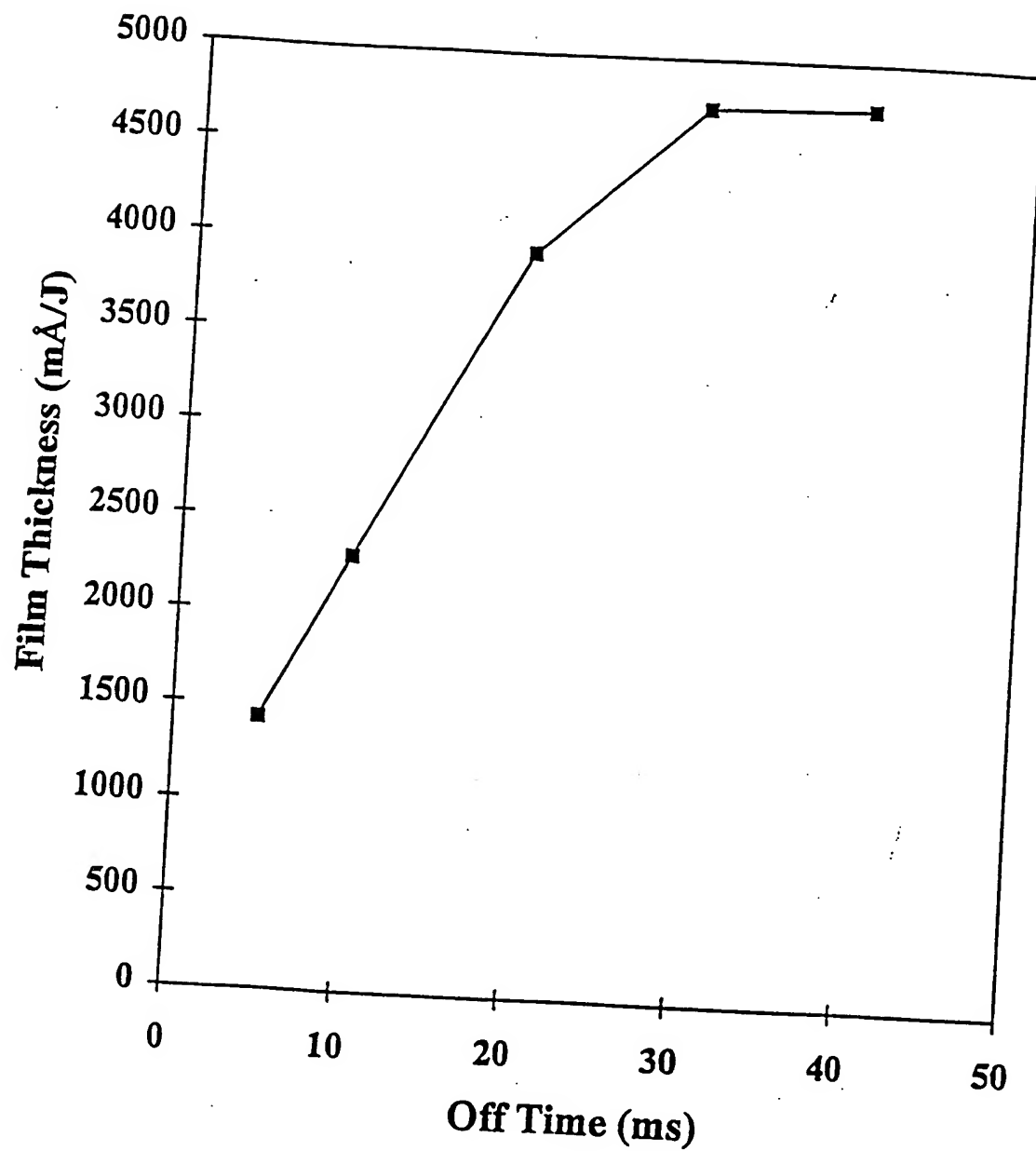


Fig 9

Fig. 16a

1/5 ms, 50W

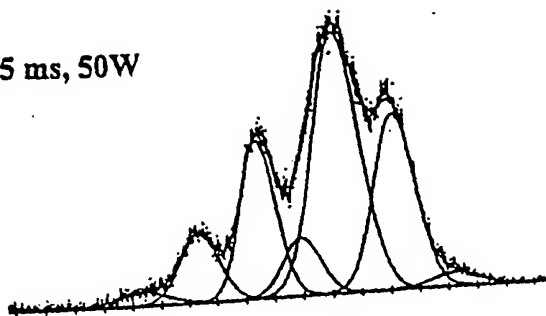


Fig 16b

1/10 ms, 50W

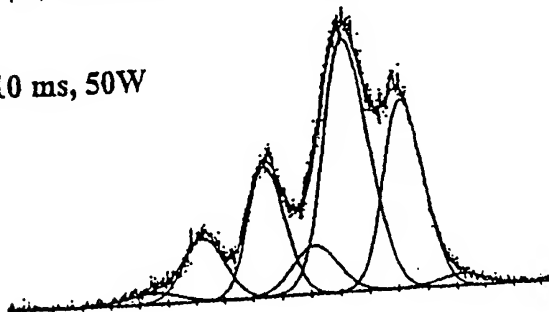


Fig 16c

1/20 ms, 50W

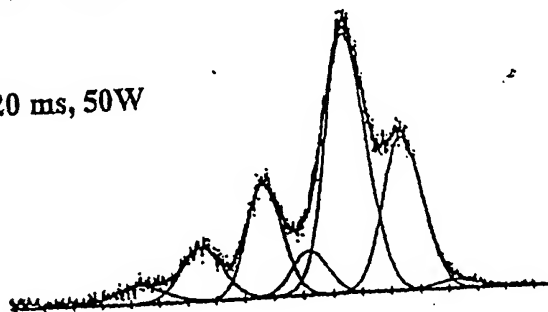


Fig 16d

1/40 ms, 50W

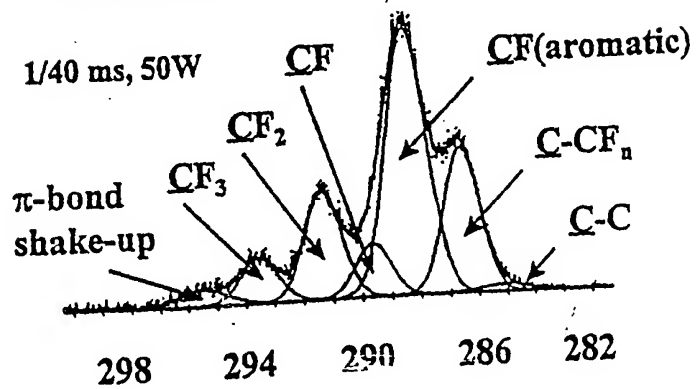


Fig. 11a

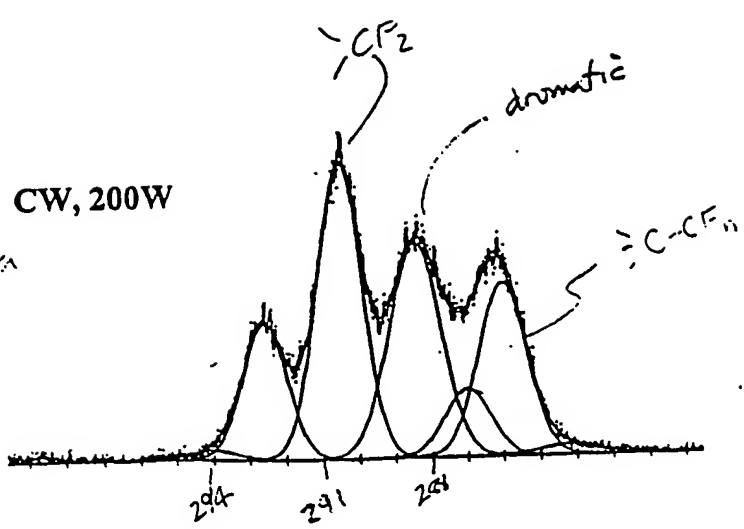


Fig. 11b

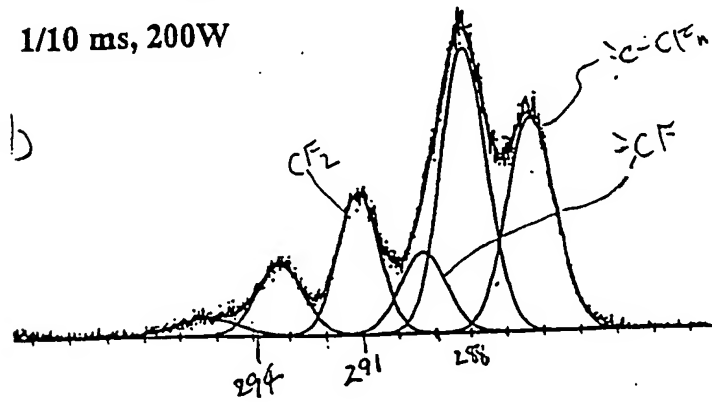


Fig. 11c

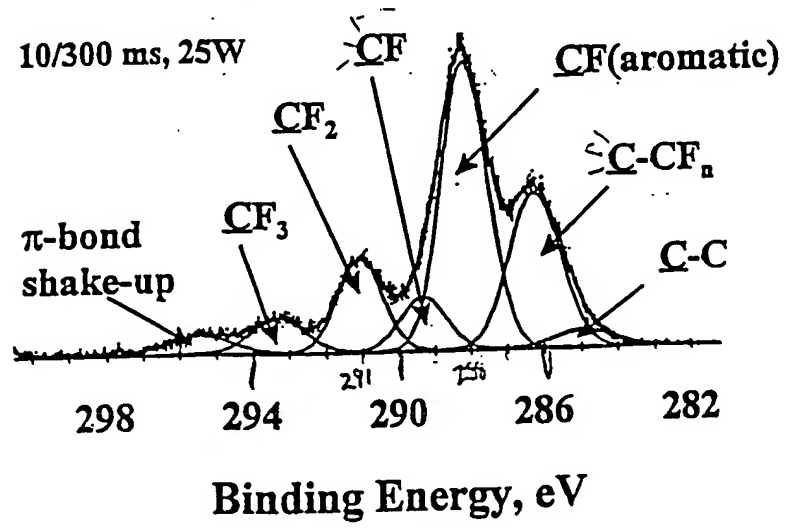


Fig. 11

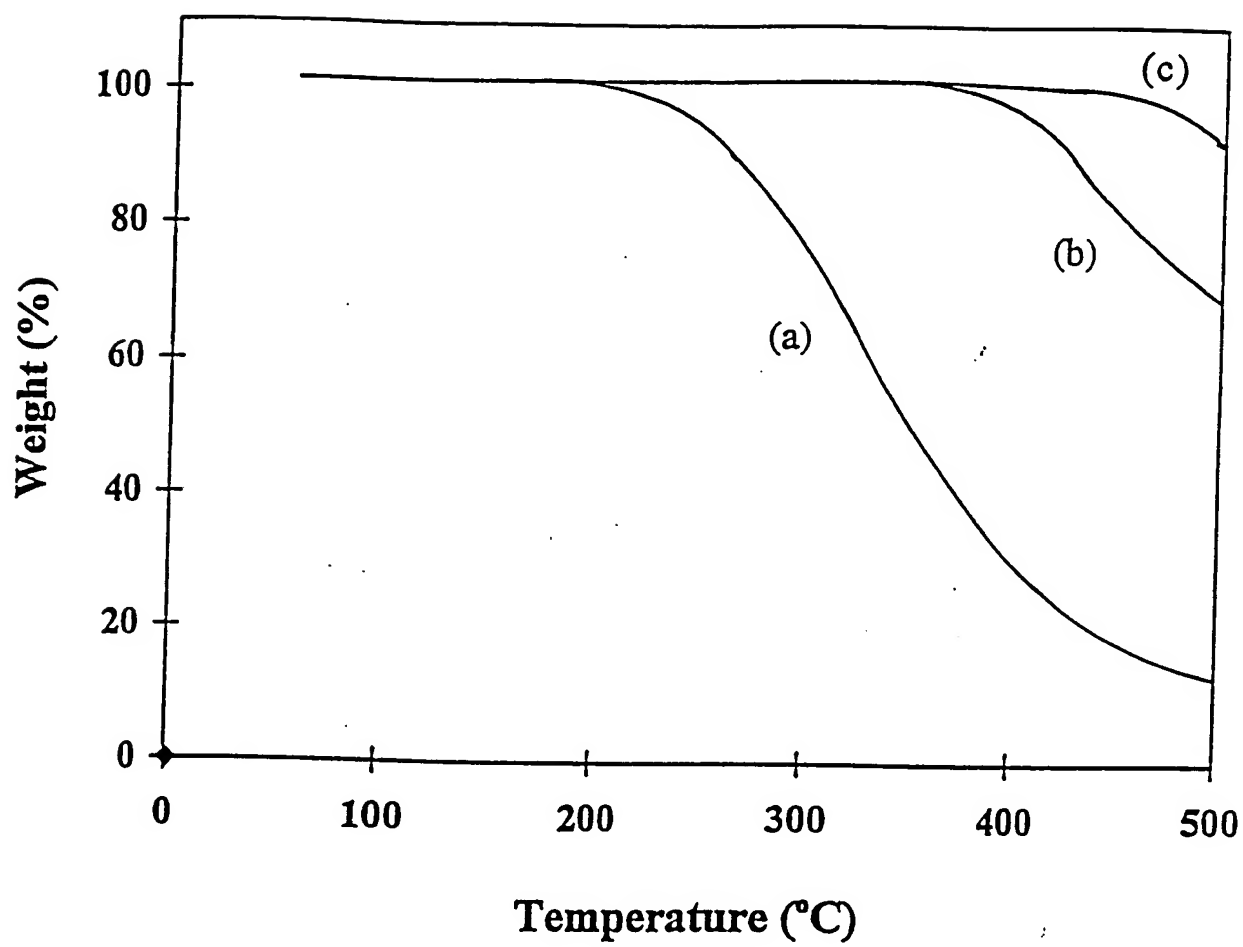


Fig. 12

Fig. 16.

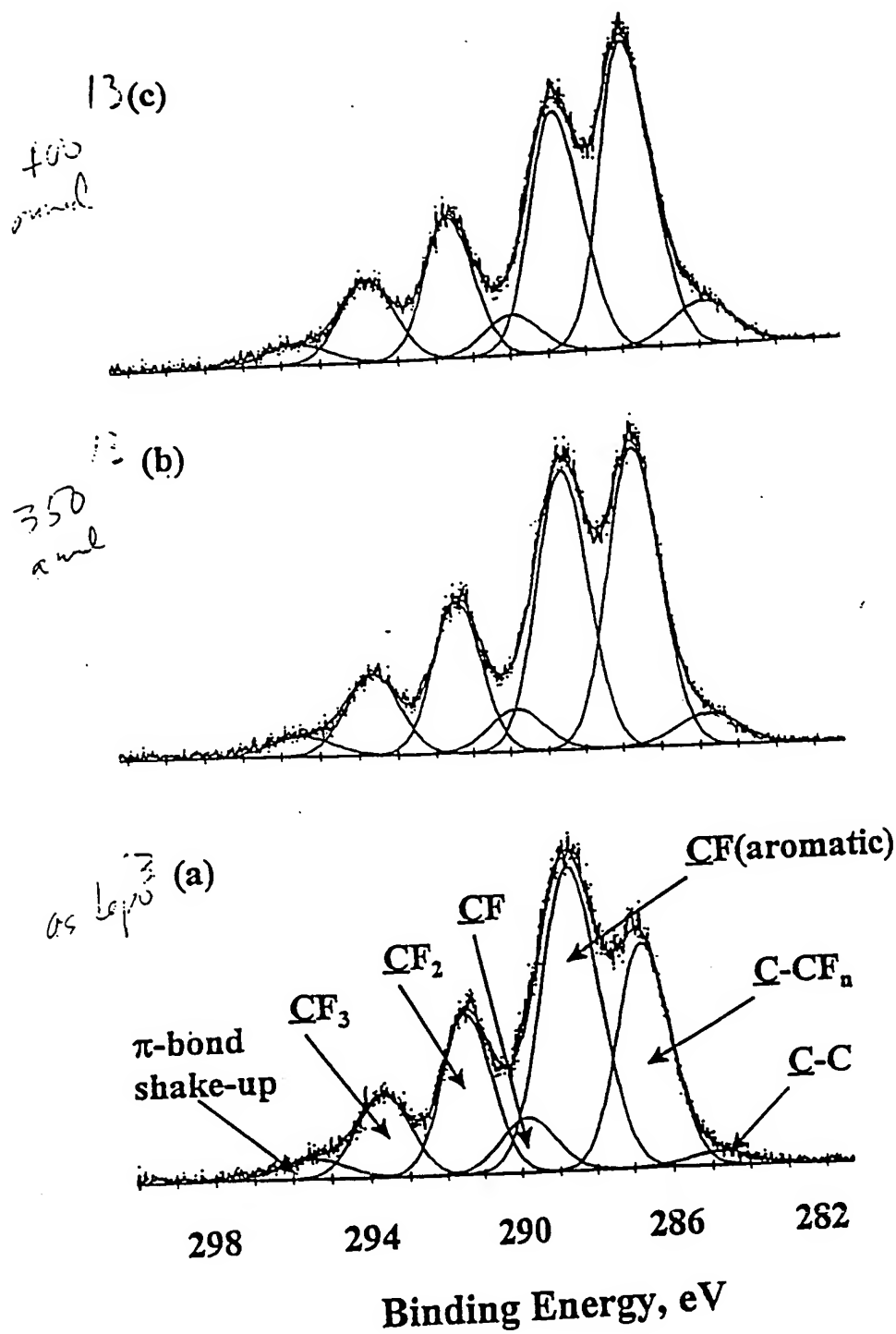


Fig. 13

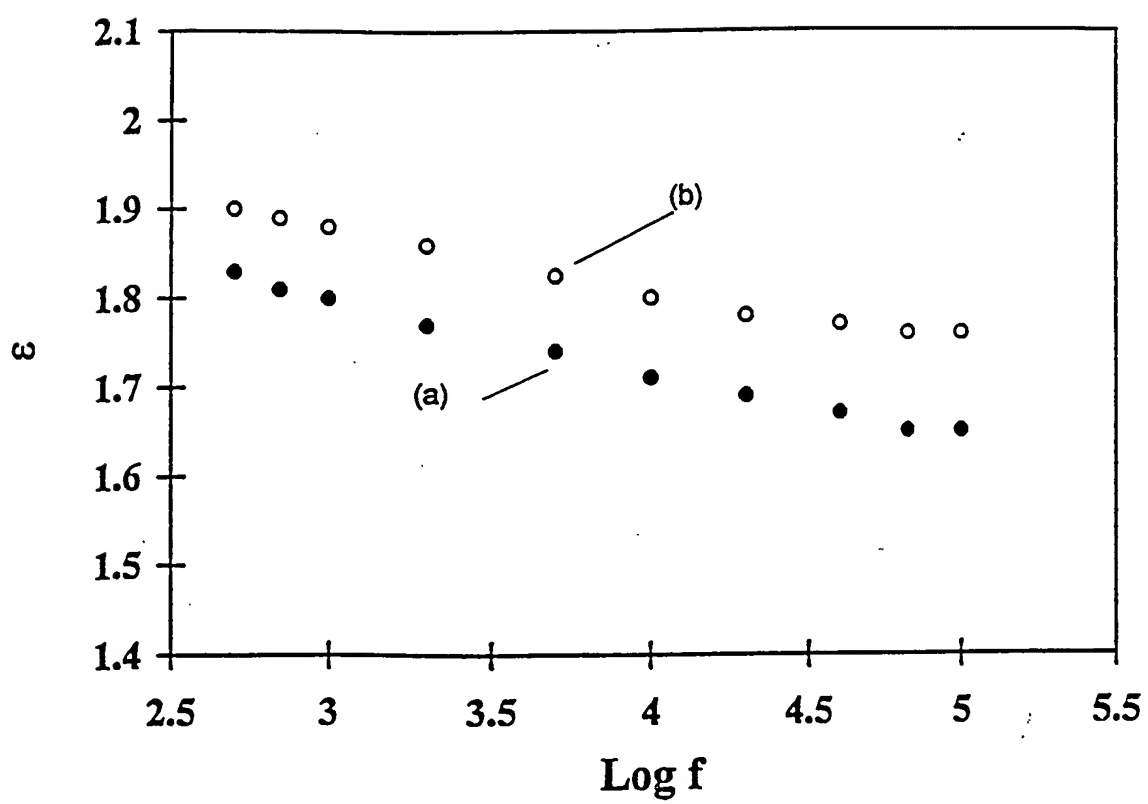


Fig. 14

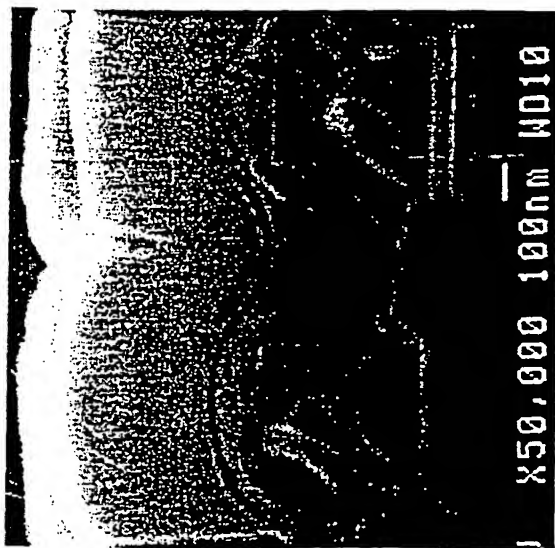


Fig. 15a

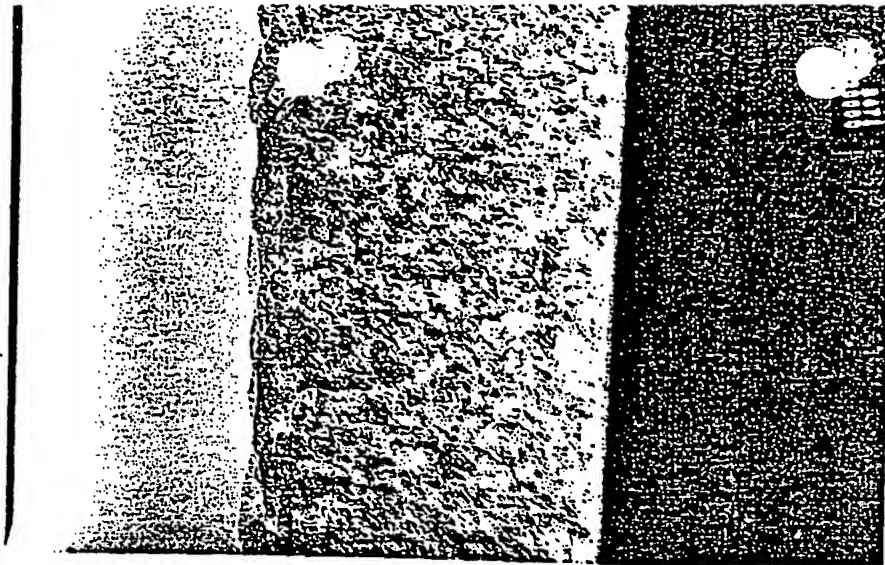


Fig. 15b